

# Markus Aspelmeyer

## List of Publications by Citations

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118  
papers

16,116  
citations

56  
h-index

126  
g-index

156  
ext. papers

19,359  
ext. citations

13.8  
avg, IF

6.82  
L-index

#	Paper	IF	Citations
118	Cavity optomechanics. <i>Reviews of Modern Physics</i> , <b>2014</b> , 86, 1391-1452	40.5	2824
117	Laser cooling of a nanomechanical oscillator into its quantum ground state. <i>Nature</i> , <b>2011</b> , 478, 89-92	50.4	1500
116	Experimental one-way quantum computing. <i>Nature</i> , <b>2005</b> , 434, 169-76	50.4	820
115	Observation of strong coupling between a micromechanical resonator and an optical cavity field. <i>Nature</i> , <b>2009</b> , 460, 724-7	50.4	709
114	Self-cooling of a micromirror by radiation pressure. <i>Nature</i> , <b>2006</b> , 444, 67-70	50.4	695
113	Optomechanical entanglement between a movable mirror and a cavity field. <i>Physical Review Letters</i> , <b>2007</b> , 98, 030405	7.4	666
112	Ground-state cooling of a micromechanical oscillator: Comparing cold damping and cavity-assisted cooling schemes. <i>Physical Review A</i> , <b>2008</b> , 77,	2.6	397
111	Quantum optomechanics. <i>Physics Today</i> , <b>2012</b> , 65, 29-35	0.9	373
110	Squeezed light from a silicon micromechanical resonator. <i>Nature</i> , <b>2013</b> , 500, 185-9	50.4	372
109	De Broglie wavelength of a non-local four-photon state. <i>Nature</i> , <b>2004</b> , 429, 158-61	50.4	372
108	Probing Planck-scale physics with quantum optics. <i>Nature Physics</i> , <b>2012</b> , 8, 393-397	16.2	359
107	Large quantum superpositions and interference of massive nanometer-sized objects. <i>Physical Review Letters</i> , <b>2011</b> , 107, 020405	7.4	305
106	Remote quantum entanglement between two micromechanical oscillators. <i>Nature</i> , <b>2018</b> , 556, 473-477	50.4	260
105	Demonstration of an ultracold micro-optomechanical oscillator in a cryogenic cavity. <i>Nature Physics</i> , <b>2009</b> , 5, 485-488	16.2	257
104	Non-classical correlations between single photons and phonons from a mechanical oscillator. <i>Nature</i> , <b>2016</b> , 530, 313-6	50.4	253
103	An experimental test of non-local realism. <i>Nature</i> , <b>2007</b> , 446, 871-5	50.4	235
102	Creating and probing multipartite macroscopic entanglement with light. <i>Physical Review Letters</i> , <b>2007</b> , 99, 250401	7.4	228

101	Quantum optomechanics: throwing a glance [Invited]. <i>Journal of the Optical Society of America B: Optical Physics</i> , <b>2010</b> , 27, A189	1.7	221
100	Cavity cooling of an optically levitated submicron particle. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2013</b> , 110, 14180-5	11.5	216
99	Tenfold reduction of Brownian noise in high-reflectivity optical coatings. <i>Nature Photonics</i> , <b>2013</b> , 7, 644-650	9.9	202
98	Pulsed quantum optomechanics. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2011</b> , 108, 16182-7	11.5	199
97	Communications: quantum teleportation across the Danube. <i>Nature</i> , <b>2004</b> , 430, 849	50.4	196
96	Quantum entanglement and teleportation in pulsed cavity optomechanics. <i>Physical Review A</i> , <b>2011</b> , 84,	2.6	161
95	Cooling of a levitated nanoparticle to the motional quantum ground state. <i>Science</i> , <b>2020</b> , 367, 892-895	33.3	160
94	Optically levitating dielectrics in the quantum regime: Theory and protocols. <i>Physical Review A</i> , <b>2011</b> , 83,	2.6	155
93	Long-distance free-space distribution of quantum entanglement. <i>Science</i> , <b>2003</b> , 301, 621-3	33.3	143
92	Experimental verification of the feasibility of a quantum channel between space and Earth. <i>New Journal of Physics</i> , <b>2008</b> , 10, 033038	2.9	140
91	Establishing Einstein-Poldosky-Rosen channels between nanomechanics and atomic ensembles. <i>Physical Review Letters</i> , <b>2009</b> , 102, 020501	7.4	138
90	Experimental interference of independent photons. <i>Physical Review Letters</i> , <b>2006</b> , 96, 240502	7.4	138
89	Nonlocality of cluster states of qubits. <i>Physical Review A</i> , <b>2005</b> , 71,	2.6	137
88	Hanbury Brown and Twiss interferometry of single phonons from an optomechanical resonator. <i>Science</i> , <b>2017</b> , 358, 203-206	33.3	136
87	Long-distance quantum communication with entangled photons using satellites. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , <b>2003</b> , 9, 1541-1551	3.8	126
86	Phonon-tunnelling dissipation in mechanical resonators. <i>Nature Communications</i> , <b>2011</b> , 2, 231	17.4	118
85	Observation of non-Markovian micromechanical Brownian motion. <i>Nature Communications</i> , <b>2015</b> , 6, 7606	7.4	110
84	Cooling-by-measurement and mechanical state tomography via pulsed optomechanics. <i>Nature Communications</i> , <b>2013</b> , 4, 2295	17.4	106

83	Experimental violation of a cluster state bell inequality. <i>Physical Review Letters</i> , <b>2005</b> , 95, 020403	7.4	100
82	Reconstructing the dynamics of a movable mirror in a detuned optical cavity. <i>New Journal of Physics</i> , <b>2006</b> , 8, 107-107	2.9	97
81	Single-photon opto-mechanics in the strong coupling regime. <i>New Journal of Physics</i> , <b>2010</b> , 12, 083030	2.9	94
80	Reduction of residual amplitude modulation to 1 $\mu$ m for frequency modulation and laser stabilization. <i>Optics Letters</i> , <b>2014</b> , 39, 1980-3	3	90
79	Experimental realization of freely propagating teleported qubits. <i>Nature</i> , <b>2003</b> , 421, 721-5	50.4	81
78	High-performance near- and mid-infrared crystalline coatings. <i>Optica</i> , <b>2016</b> , 3, 647	8.6	81
77	Optomechanical Bell Test. <i>Physical Review Letters</i> , <b>2018</b> , 121, 220404	7.4	81
76	Happy centenary, photon. <i>Nature</i> , <b>2005</b> , 433, 230-8	50.4	80
75	Pulsed laser cooling for cavity optomechanical resonators. <i>Physical Review Letters</i> , <b>2012</b> , 108, 153601	7.4	76
74	Cavity Cooling of a Levitated Nanosphere by Coherent Scattering. <i>Physical Review Letters</i> , <b>2019</b> , 122, 123602	7.4	74
73	Silicon optomechanical crystal resonator at millikelvin temperatures. <i>Physical Review A</i> , <b>2014</b> , 90,	2.6	74
72	Experimental test of nonlocal realistic theories without the rotational symmetry assumption. <i>Physical Review Letters</i> , <b>2007</b> , 99, 210406	7.4	71
71	Phase-noise induced limitations on cooling and coherent evolution in optomechanical systems. <i>Physical Review A</i> , <b>2009</b> , 80,	2.6	70
70	Direct frequency comb measurement of OD + CO $\rightarrow$ DCO kinetics. <i>Science</i> , <b>2016</b> , 354, 444-448	33.3	65
69	Macroscopic quantum resonators (MAQRO). <i>Experimental Astronomy</i> , <b>2012</b> , 34, 123-164	1.3	60
68	Space-quest, experiments with quantum entanglement in space. <i>Europhysics News</i> , <b>2009</b> , 40, 26-29	0.2	60
67	Monocrystalline AlxGa1-xAs heterostructures for high-reflectivity high-Q micromechanical resonators in the megahertz regime. <i>Applied Physics Letters</i> , <b>2008</b> , 92, 261108	3.4	58
66	Optimal State Estimation for Cavity Optomechanical Systems. <i>Physical Review Letters</i> , <b>2015</b> , 114, 223601	7.4	57

65	High-fidelity entanglement swapping with fully independent sources. <i>Physical Review A</i> , <b>2009</b> , 79,	2.6	57
64	Macroscopic Quantum Resonators (MAQRO): 2015 update. <i>EPJ Quantum Technology</i> , <b>2016</b> , 3,	6.9	57
63	Quantum state orthogonalization and a toolset for quantum optomechanical phonon control. <i>Physical Review Letters</i> , <b>2013</b> , 110, 010504	7.4	56
62	Laser noise in cavity-optomechanical cooling and thermometry. <i>New Journal of Physics</i> , <b>2013</b> , 15, 035007	2.9	55
61	Quantum superposition of massive objects and the quantization of gravity. <i>Physical Review D</i> , <b>2018</b> , 98,	4.9	55
60	Macroscopic Optomechanics from Displaced Single-Photon Entanglement. <i>Physical Review Letters</i> , <b>2014</b> , 112,	7.4	51
59	A micromechanical proof-of-principle experiment for measuring the gravitational force of milligram masses. <i>Classical and Quantum Gravity</i> , <b>2016</b> , 33, 125031	3.3	49
58	Quantum communications at ESA: Towards a space experiment on the ISS. <i>Acta Astronautica</i> , <b>2008</b> , 63, 165-178	2.9	48
57	Radiation-pressure self-cooling of a micromirror in a cryogenic environment. <i>Europhysics Letters</i> , <b>2008</b> , 81, 54003	1.6	45
56	Anti-symmetrization reveals hidden entanglement. <i>New Journal of Physics</i> , <b>2009</b> , 11, 103052	2.9	43
55	Satellite-based quantum communication terminal employing state-of-the-art technology. <i>Journal of Optical Networking</i> , <b>2005</b> , 4, 549		40
54	Real-time optimal quantum control of mechanical motion at room temperature. <i>Nature</i> , <b>2021</b> , 595, 373-374	3.74	38
53	Influence of satellite motion on polarization qubits in a Space-Earth quantum communication link. <i>Optics Express</i> , <b>2006</b> , 14, 10050-9	3.3	37
52	Optical trapping and control of nanoparticles inside evacuated hollow core photonic crystal fibers. <i>Applied Physics Letters</i> , <b>2016</b> , 108, 221103	3.4	32
51	Heralded generation of multiphoton entanglement. <i>Physical Review A</i> , <b>2007</b> , 75,	2.6	28
50	Cavity optomechanics of levitated nanodumbbells: nonequilibrium phases and self-assembly. <i>Physical Review Letters</i> , <b>2013</b> , 110, 143604	7.4	26
49	High reflectivity high-Q micromechanical Bragg mirror. <i>Applied Physics Letters</i> , <b>2006</b> , 89, 223101	3.4	25
48	Near-field coupling of a levitated nanoparticle to a photonic crystal cavity. <i>Optica</i> , <b>2018</b> , 5, 1597	8.6	24

47	Optimized SESAMs for kilowatt-level ultrafast lasers. <i>Optics Express</i> , <b>2016</b> , 24, 10512-26	3.3	24
46	Time-continuous Bell measurements. <i>Physical Review Letters</i> , <b>2013</b> , 111, 170404	7.4	22
45	Levitodynamics: Levitation and control of microscopic objects in vacuum. <i>Science</i> , <b>2021</b> , 374, eabg3027	33.3	22
44	Quantum technology: from research to application. <i>Applied Physics B: Lasers and Optics</i> , <b>2016</b> , 122, 1	1.9	21
43	Free-standing Al <sub>x</sub> Ga <sub>1-x</sub> As heterostructures by gas-phase etching of germanium. <i>Applied Physics Letters</i> , <b>2010</b> , 96, 261102	3.4	19
42	A quantum renaissance. <i>Physics World</i> , <b>2008</b> , 21, 22-28	0.5	19
41	Tensile-strained In <sub>x</sub> Ga <sub>1-x</sub> P membranes for cavity optomechanics. <i>Applied Physics Letters</i> , <b>2014</b> , 104, 201908	3.4	17
40	Photonic entanglement as a resource in quantum computation and quantum communication. <i>Journal of the Optical Society of America B: Optical Physics</i> , <b>2007</b> , 24, 241	1.7	17
39	High-resolution x-ray reflectivity study of thin layered Pt-electrodes for integrated ferroelectric devices. <i>Journal Physics D: Applied Physics</i> , <b>2001</b> , 34, A173-A178	3	17
38	Levitated cavity optomechanics in high vacuum. <i>Quantum Science and Technology</i> , <b>2020</b> , 5, 025006	5.5	15
37	Measurement of gravitational coupling between millimetre-sized masses. <i>Nature</i> , <b>2021</b> , 591, 225-228	50.4	15
36	Complementarity and Information in Delayed-choice for Entanglement Swapping. <i>Foundations of Physics</i> , <b>2005</b> , 35, 1909-1919	1.2	14
35	Coherent cancellation of photothermal noise in GaAs/Al <sub>0.92</sub> Ga <sub>0.08</sub> As Bragg mirrors. <i>Metrologia</i> , <b>2016</b> , 53, 860-868	2.1	14
34	Femtosecond laser fabrication of high reflectivity micromirrors. <i>Applied Physics Letters</i> , <b>2010</b> , 97, 041104	3.4	13
33	Proof-of-concept experiments for quantum physics in space <b>2004</b> , 5161, 252		13
32	Space-to-ground quantum communication using an optical ground station: a feasibility study <b>2004</b> , 5551, 113		11
31	Information content of the gravitational field of a quantum superposition. <i>International Journal of Modern Physics D</i> , <b>2019</b> , 28, 1943001	2.2	11
30	Sensing earth's rotation with a helium-neon ring laser operating at 1.15 $\mu$ m. <i>Optics Letters</i> , <b>2015</b> , 40, 1705-8	3	10

29	How cold can you get in space? Quantum physics at cryogenic temperatures in space. <i>New Journal of Physics</i> , <b>2014</b> , 16, 013058	2.9	10
28	Time-Dependent Aspects of the Athermal Martensitic Transformation: First Observation of Incubation Time in Ni <sub>3</sub> Al. <i>Physica Status Solidi A</i> , <b>1999</b> , 174, R9-R10		10
27	Cavity optomechanics: Mechanical memory sees the light. <i>Nature Nanotechnology</i> , <b>2011</b> , 6, 690-1	28.7	9
26	Solid-liquid interface of a 2-propanol-perfluoromethylcyclohexane mixture: from adsorption to wetting. <i>Physical Review E</i> , <b>2002</b> , 65, 061604	2.4	9
25	Thermal performance of a radiatively cooled system for quantum optomechanical experiments in space. <i>Applied Thermal Engineering</i> , <b>2016</b> , 107, 689-699	5.8	9
24	Detecting Nonclassical Correlations in Levitated Cavity Optomechanics. <i>Physical Review Applied</i> , <b>2020</b> , 14,	4.3	7
23	Analytic solutions to the Maxwell-London equations and levitation force for a superconducting sphere in a quadrupole field. <i>Physica Scripta</i> , <b>2019</b> , 94, 125508	2.6	7
22	Performing high-quality multi-photon experiments with parametric down-conversion. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , <b>2009</b> , 42, 114008	1.3	7
21	Stationary optomechanical entanglement between a mechanical oscillator and its measurement apparatus. <i>Physical Review Research</i> , <b>2020</b> , 2,	3.9	7
20	Large Quantum Delocalization of a Levitated Nanoparticle Using Optimal Control: Applications for Force Sensing and Entangling via Weak Forces. <i>Physical Review Letters</i> , <b>2021</b> , 127, 023601	7.4	7
19	Action from tunable periodic structures. II. Experimental observation of electric field-induced diffraction peaks. <i>Applied Optics</i> , <b>2002</b> , 41, 5845-50	1.7	6
18	MEGAHERTZ MONOCRYSTALLINE OPTOMECHANICAL RESONATORS WITH MINIMAL DISSIPATION <b>2010</b> ,		5
17	How to extend quantum experiments. <i>Fortschritte Der Physik</i> , <b>2009</b> , 57, 1153-1162	5.7	5
16	Logical independence and quantum randomness. <i>New Journal of Physics</i> , <b>2010</b> , 12, 013019	2.9	4
15	Martensitic relief formation on an electropolished Ni-37 at.% Al (001) surface by diffuse X-ray scattering under grazing angles. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , <b>1999</b> , 273-275, 286-290	5.3	4
14	Macroscopic quantum resonators in space <b>2011</b> ,		3
13	Premonitory Martensitic Surface Relief Via Novel X-Ray Diffuse and Laser Light Reflectivity from The (001)-Surface of A Ni <sub>63</sub> Al <sub>37</sub> Single Crystal. <i>Materials Research Society Symposia Proceedings</i> , <b>1999</b> , 580, 293		3
12	Reduction of absorption losses in MOVPE-grown AlGaAs Bragg mirrors. <i>Optics Letters</i> , <b>2018</b> , 43, 3522-3525		2

11	When Zeh Meets Feynman: How to Avoid the Appearance of a Classical World in Gravity Experiments. <i>Fundamental Theories of Physics</i> , <b>2022</b> , 85-95	0.8	2
10	Mid-infrared crystalline mirrors with ultralow optical losses <b>2017</b> ,		1
9	Strain profile and polarization enhancement in Ba <sub>0.5</sub> Sr <sub>0.5</sub> TiO <sub>3</sub> thin films. <i>Physica Status Solidi (A) Applications and Materials Science</i> , <b>2012</b> , 209, 2255-2259	1.6	1
8	Licht macht Druck. <i>Physik in Unserer Zeit</i> , <b>2011</b> , 42, 276-284	0.1	1
7	An experimental method to investigate the structure and kinetics of patterned surfaces using laser light diffraction. <i>Review of Scientific Instruments</i> , <b>2002</b> , 73, 108-113	1.7	1
6	Advanced Quantum Communications Experiments with Entangled Photons. <i>Optical Science and Engineering</i> , <b>2005</b> , 45-81		1
5	Optomechanical Schrödinger cats a case for space 123-132		1
4	Quantum optomechanics 259-279		0
3	Suspended Mirrors: From Test Masses to Micromechanics <b>2014</b> , 57-81		
2	Ein quantenoptischer Blick auf die Planck-Skala?. <i>Physik in Unserer Zeit</i> , <b>2012</b> , 43, 163-164	0.1	
1	Entangled Photons and Quantum Communication. <i>Les Houches Summer School Proceedings</i> , <b>2004</b> , 79, 337-355		